

Abstract of the Disclosure

An inductor alternator flywheel system, for converting between electrical and kinetic energy, includes an annular steel flywheel mounted on bearings for rotation about an axis. The flywheel has an inwardly facing radial surface forming multiple protrusions or teeth extending radially inwardly. A yoke has a field coil for producing homopolar flux which creates magnetic poles in the teeth. A cylinder constructed of substantially high permeability material, and having an outer radial surface, is mounted concentrically in the bore of the annular flywheel and is spaced apart radially from the teeth such that an armature air gap is formed between the teeth and the outer surface of the cylinder. A ring of armature coils is mounted within the air gap such that the flux induces an alternating voltage in the armature coils when the rotor rotates about its axis. A field controller provides field power at a level to the field coil when the flywheel is rotating at normal full operating speed such that the generator provides full output power under full load to the output at the instant of disruption in primary power. The field controller increases the field power during a continuous disruption of primary power to maintain a substantially constant output voltage at the output as the generator speed decreases.